

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 27-230	<b>FOR FURTHER ACTION</b>	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/IL04/00758	International filing date (day/month/year) 18 August 2004 (18.08.2004)	(Earliest) Priority Date (day/month/year) 28 January 2004 (28.01.2004)
Applicant RAMOT AT TEL-AVIV UNIVERSITY LTD.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the Report**

- a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).
- b. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.
2. ☐ Certain claims were found unsearchable (See Box No. II)
3. ☐ Unity of invention is lacking (See Box No. III)
4. With regard to the title,
 

☒ the text is approved as submitted by the applicant.  
☐ the text has been established by this Authority to read as follows:

**5. With regard to the abstract,**

- ☐ the text is approved as submitted by the applicant.  
☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

**6. With regard to the drawings,**

- a. the figure of the drawings to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.  
☐ as selected by this Authority, because the applicant failed to suggest a figure.  
☐ as selected by this Authority, because this figure better characterizes the invention.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/IL04/00758

## Box IV TEXT OF THE ABSTRACT (Continuation of Item 5 of the first sheet)

The technical features mentioned in the abstract do not include a reference sign between parentheses (PCT Rule 8.1(d)).

### NEW ABSTRACT

To transmit data, a set of at least  $2^m$   $n \times n$  matrices that represent an extension of a fixed-point-free group is provided. To each of  $2^m$  of the matrices is allocated one of the binary numbers from 0 to  $2^m - 1$ . The data are mapped into the matrices according to the allocation (12). The mapped matrices are transmitted, preferably using  $n$  antennas (16, 18), one antenna per row of each matrix.

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International application No.

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## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H04B 7/04

US CL : 375/267, 299

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
U.S. : 375/267, 299, 347; 455/101; 714/752-785

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Please See Continuation Sheet

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X, E	US 6801579 B1 (HASSIBI et al) 05 October 2004 (10.05.2004), see Abstract, col. 4, lines 35-63.	1-12
A, E	US 6842494 B2 (IONESCU) 11 January 2005 (11.01.2005), see entire document	1-2
A	US 2002/0126648 A1 (KUCHI et al) 12 September 2002 (12.09.2002), see entire document	1-12

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

28 April 2005 (28.04.2005)

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US  
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P.O. Box 1450  
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Date of mailing of the international search report

25 MAY 2005

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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/IL04/00758

Continuation of B. FIELDS SEARCHED Item 3:

EAST

search terms: STBC, space time block code, extension, fixed point free, matrix